



New alternative to increase synchronization to Ovsynch

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Producers have a new option for increasing the effectiveness of Ovsynch in lactating dairy cows. In a study published in the September edition of Journal of Dairy Science it was reported that synchronization rates to Ovsynch in lactating dairy cows were increased by using a PGF_{2α} and GnRH based strategy preceding Ovsynch. Dubbed G6G, this new pre-Ovsynch protocol consists of administering PGF_{2α} and GnRH prior to the initiation of the traditional Ovsynch protocol.

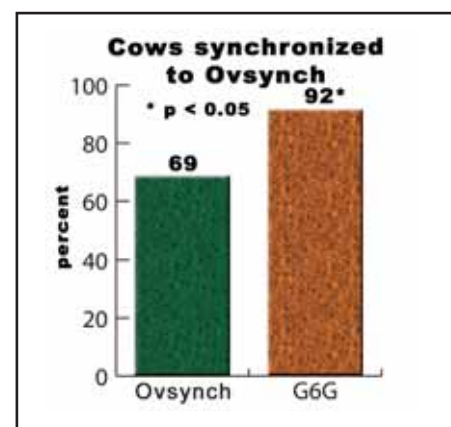
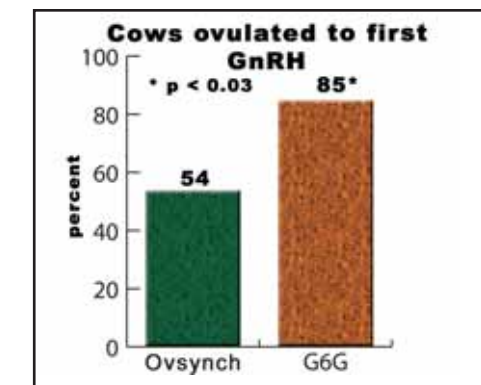
The first in a series of experiments by Michigan State University (MSU) researchers Dr. Richard Pursley and Nora Bello, this study focused on developing a pre-Ovsynch program to increase the percentage of cows that ovulate in response to the first GnRH injection of Ovsynch. Ovulation to the first GnRH of Ovsynch is a key component to the successful synchronization outcome to the overall protocol.

Conducted from January to April, 2005 at Nobis Dairy Farm in St. Johns, Mich., this study involved 137 first service lactating Holstein dairy cows with a voluntary waiting period of 80 – 86 days. Three alternative pre-Ovsynch treatments, including G6G, were compared to traditional Ovsynch in their effectiveness to synchronize ovulation in lactating dairy cows. Due to lack of positive results, other pre-Ovsynch treatments evaluated in this study are not further described.

Pre-Ovsynch treatments consisted of 25 mg of PGF_{2α}, named PreP (5 cc, Prostatate®); followed two days later by 100 ug of GnRH, called PreG (2 cc, Ovacyst®). These two injections (PreP and PreG) are referred to as pre-Ovsynch treatment. In cows assigned to G6G, the first GnRH of Ovsynch was administered six days after PreG. All cows received Ovsynch (GnRH – seven days – PGF_{2α} – two days – GnRH) and were timed AI 16 hours after final GnRH of Ovsynch (Figure 1).

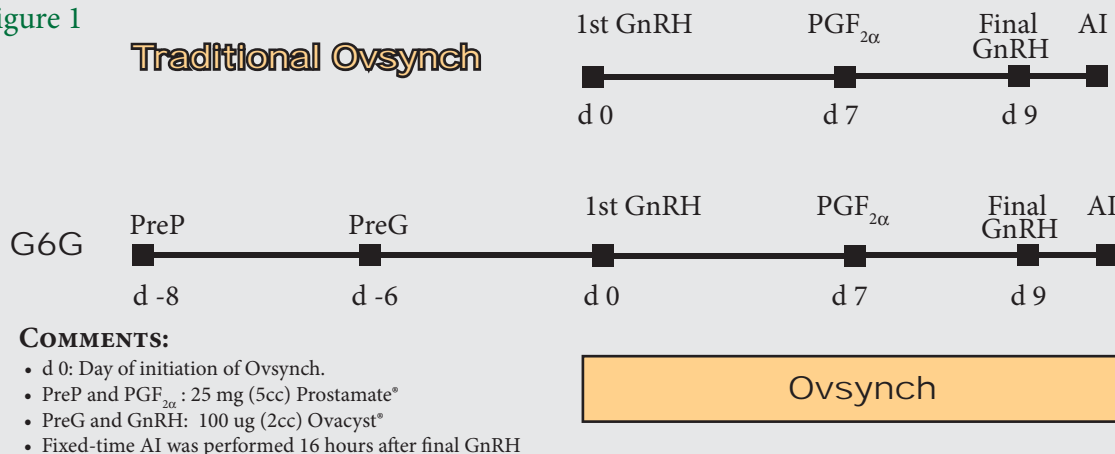
Transrectal ultrasonography was performed immediately before each injection to identify and measure ovarian structures, and again two days after each GnRH injection to assess ovulatory response. Blood samples were collected prior to each injection to measure circulating concentrations of progesterone and estradiol. Progesterone and estradiol are hormones used to evaluate the functionality of ovarian structures in a cow.

Results indicated treatment with G6G outperformed other treatments, including Ovsynch alone, by increasing the percentage of cows ovulating to the first GnRH injection: 85 per-



cent for G6G compared to 54 percent for Ovsynch; P < 0.03 (Figure 2). As a result, 92 percent of G6G-treated cows synchronized to Ovsynch compared to 69 percent of cows treated only with Ovsynch; P < 0.05 (Figure

Figure 1



2). Cows that synchronize to Ovsynch are more likely to be inseminated at an optimum time relative to ovulation and thus, to establish a pregnancy.


Given the limited number of cows used in this study, it is not yet clear if G6G alone can improve conception rates in Ovsynch-treated cows. Further study with more cows and farms will be required for validation of the accuracy of conception rates. Nevertheless, the researchers identified three potential predictors of fertility in lactating dairy cows; namely concentrations of progesterone at PGF_{2α} of Ovsynch, size of the preovulatory follicle and concentrations of estradiol at final GnRH of Ovsynch. Based

on these predictors of fertility, ongoing research by Pursley and Bello will concentrate on restructuring Ovsynch to consistently control follicular growth and induce ovulation of follicles with greater fertility potential.

Along with improved ovulatory response, the G6G pre-Ovsynch protocol provides a quick option to lineup cows for Ovsynch. Completion of G6G prior to Ovsynch requires only eight days, in contrast with longer intervals of other pre-synchronization protocols.

If you are using Ovsynch in your reproduction program, the addition of G6G may prove beneficial to optimizing synchronization. Despite

statistically significant improvements in synchronization rates to Ovsynch, keep in mind this study is based on data from only one farm and comprises a limited number of cows. Thus, talk to your veterinarian and reproductive specialist before implementing any changes in your reproduction program. For more detailed information regarding the G6G pre-Ovsynch protocol, contact Dr. Richard Pursley, MSU Department of Animal Science at pursleyr@msu.edu or 517.432.6178.

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Genetic evaluation changes reflected in August sire summaries

A number of modifications were made in the genetic evaluations with the release of the August 2006 sire summaries. Changes were made to Productive Life, Net Merit, and JPI. New traits now available include still birth rates for Holstein and Brown Swiss sires, as well as rear teat placement for Holstein and rear legs, rear view for Guernsey and Brown Swiss sires.

Holstein and Brown Swiss sires received evaluations for stillbirth rates. Just like calving ease, bulls now have ratings for service sire (SSB) and daughter stillbirths (DSB). The evaluations are published as the expected percentage of stillbirths in calvings from cows across all lactations. As with any genetic evaluations, the focus should be on ranking of sires and difference in their evaluations. Daughters of a bull at 5 percent DSB would be expected to have 5 percent fewer stillborn calves than daughters of a bull with an evaluation of 10 percent. Daughter stillbirth evalua-

tions should receive more attention than service sire stillbirth values as they have a higher heritability value, 6.5 percent compared to 3 percent for SSB. DSB values range from 4 – 18 percent, while SSB values range from 5 – 12 percent.

Productive life (PL) PTA's for all breeds has been revised. The new PL evaluation gives credit to cows for all months of lactation during their lifetime rather than just the first ten months of lactation. PL values now range from -7.0 to +7.0. This revision makes PL a more pure measure of longevity.

With the addition of stillbirth evaluations and the revision to PL, researchers reformulated USDA's merit dollar values. The new Net Merit Dollars (NM\$) includes stillbirth evaluations and places stronger emphasis on the fitness traits and less emphasis on protein yield. NM\$ ranks sires and cows giving 46 percent weighting to production traits, 45 percent to fitness traits and 9 percent to conformation.

The American Jersey Cattle Association has revised JPI™. The new JPI includes more emphasis on PL and daughter pregnancy rate (DPR) and less emphasis on protein yield. The new JPI gives 60 percent emphasis to production, 22 percent to fitness traits and 18 percent to conformation.

The trait rear teat placement is new for Holstein sires and measures the distance between the rear teats. On the 50 point linear evaluation scale, 1 equals 4.5 inches between rear teats, 25 equals 2.0 inches distance and 50 equals crossed teats. Every 10 linear points is equal to 1.0 inch of distance between the rear teats. Rear teat placement has a heritability of 32 percent, and is not currently included in Udder Composite (UDC).

These changes are designed to provide better tools for improving the health and fitness traits of dairy cattle. For more information on the genetic evaluation changes visit with your NorthStar professional. 